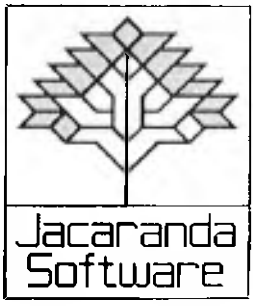

Bush Rescue

Software Manual

Mike Matson & David Smith

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65 Park Road, Milton, Qld 4064
140A Victoria Road, Gladesville, N.S.W. 2111
90 Ormond Road, Elwood, Vic. 3184
4 Kirk Street, Grey Lynn, Auckland 2, N.Z.

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Introduction

In this software, you have to plan a camping trip to a national park, using timetables and making bookings. Once you get to the camp site, you become involved in helping to find and rescue an injured caver. Later you help navigate the rescue helicopter that takes the caver to hospital; finally you can write a report for the local newspaper.

The four sections, namely planning, search, helicopter rescue, and write-up, can be done at different times — your status is saved automatically as you complete each section. The software will store up to eighty adventures at once.

Important notes

1. The black-line masters, Tourist Guide, National Park Guide and the timetables may be copied for student use only within the educational institution for which they have been purchased; in these circumstances no payment for copying is required by the copyright holders.
2. Please make a backup copy of this disk and put the original in a safe place. You are permitted to make one backup copy for use in your institution. **Any attempt to distribute copies of this disk outside your institution will be viewed as a serious breach of copyright and will result in legal proceedings being initiated against the individual(s) involved and their employer.**

1 Background

The authors have been associated with the design and development of a number of widely-used cross-curricular adventure packages including *Flowers of Crystal*, *Dragon World* and *Dinosaur Discovery*. When it was suggested that there were children (and teachers) who preferred a package based on something other than fantasy, it seemed natural that they should combine their talents to produce a realistic adventure.

There was a problem: David lives in Melbourne, Mike lives near London, while the staff of Jacaranda Software, who coor-

dinated the development and wrote the support material, are based in Brisbane. This separation would have made any kind of collaboration impossible a few years ago, but electronic mail systems have allowed *Bush Rescue* to become a reality. During the eighteen months it was under development, there was almost daily contact between Brisbane and London, while David relied more on phone calls and overnight couriers to maintain the Melbourne-Brisbane link. It was possible to conduct simultaneous trials in the U.K. and Australia, with modifications being made to both the print materials and the software thanks to the lightning delivery of messages through the Telecom Gold and Keylink systems.

The authors did meet once during the development of the package. The most visible result of the meeting is in the rescue section: a log problem conceived in a rainforest near Brisbane during a rather difficult creek crossing. For many of the other ideas in both the software and the resources, our thanks are due to Judith Matson, Rosemary Guttormsen, Adrienne Anthony, Jeanette Norton and children from MacGregor and Kenmore State Schools in Brisbane.

2 Getting started

Apple

1. Put the STARTUP disk in drive 1 and switch on the computer.
2. When the red light on the disk drive is glowing, shut the drive door.
3. The title screen will appear.

BBC

Note: If you are using *Bush Rescue* on a network, see page 30 for details of how to install the package.

1. Switch on the computer. If using a stand-alone machine, put the disk in drive 0 and shut the drive door.
2. Hold down SHIFT, tap the BREAK key and then release the SHIFT key.
3. The title screen will appear.

Commodore

1. Turn on the computer and the disk drive.
2. Place the disk in the drive and shut the drive door.
3. Enter LOAD "B*",8: (don't forget the colon) and press RETURN.
4. After a brief wait you will be asked whether you want a fast load or normal load. Choose the normal load only if you are using a network or are having any problems with the fast load.
5. The title screen will appear.

All versions

After the title screen appears there will be a short wait before the following choices appear:

Start a new adventure
Continue an adventure
Just practise

Move the highlight bar using the arrow keys then make your selection by pressing RETURN.

If you choose to "Just practise", you have the further choice of practising flying the helicopter or making the log bridge, or returning to the first screen. Make your choice in the same way.

You can hit the "T" key instead of using the highlight bar. This takes you into the teacher's housekeeping program, described on page 27.

3 The adventure

We strongly recommend that you break your class's *Bush Rescue* activities into four separate and well-defined sections:

Planning the trip —
learning to use the software (especially saving your adventure and how to resume a saved adventure),
using timetables,
making bookings with Infotel,
reading the brochures,
filling out the safety information sheet;

The search —
planning the search,
making the log bridge,
keeping track of the group's position on the map;

The rescue —
practising flying the helicopter,
making the rescue flight;

The write-up —
planning the article,
writing and printing the report,
publication.

Planning the trip

Although children can begin *Bush Rescue* without receiving any prior information or advice, this approach may lead to frustration and a loss of motivation. Children (as well as adults) often fail to read important introductory information in their rush to get to the heart of the adventure. In *Bush Rescue* children must read the first information screen, "Planning your trip", or (better) be provided with that information before they use the software. The following points are extremely important:

1. Children must keep a written record of their six-digit code number; it will be needed whenever they return to their adventure. No reminders are given.
2. The departure date must be written down.
3. There is essential information in the timetables, brochures and guides that is not given by the computer.

If the children enter the Infotel section unprepared, their best plan is to leave it and return when they have carried out the necessary research and discussion.

Timetables

There are two timetables, one for the railway and the other for McCue's Buslines. Note that McCue's timetable uses an a.m./p.m. format while the railway timetable uses a 24-hour clock. Children will have to relate one to the other.

Infotel

Infotel is based on the Australian Viatel and British Prestel systems. By familiarising themselves with Infotel, children should feel reasonably comfortable when using similar systems for the first time. Not only is Infotel simpler to use (by virtue of its restriction to 30 pages), but it is also cheaper to access!

To make it easier for children to access the Infotel pages independently of the adventure, the teacher could reserve one number for this purpose. Choose to start a new adventure, but don't make any bookings. Whenever the children want to explore Infotel, they can use this reserved code number.

Sometimes it is frustrating to find that certain pages are inaccessible. Children should ask themselves why there are "dead ends" in the system. Is it just to annoy them?

A worthwhile activity would be for children to find out how many different pages there are on the Infotel system and try to work out how they are connected to each other. The class could go a step further and design some of the "missing" pages. Option 7 in the teacher's housekeeping program (see page 27) allows you to rewrite one of the local news screens; there is no reason why children should not do this.

The appendix lists some packages that let children create their own videotext pages.

The brochures

Two brochures are included in the package. These are designed to provide a setting for the adventure and to give the children the feeling that Caves Bay has many things in common with other national parks and tourist resorts they may have visited.

If the class is fairly mature, they might look for hints pointing to changes in the district's economy over the last fifty years, how the relative importance of towns has changed, and a development-or-conservation debate that has been taking place in the area.

The children could produce a tourist brochure for their own district as part of a local area study, or a guide to a local national park as part of their science studies.

Planning the safety information sheet

This sheet is based on those used in some areas where walkers have frequently got into trouble. The idea of having a "contact person" is vital to the preparation of this sheet; it should always be filled out with the needs of a search party in mind, not just those of the walkers. Whoever organises a search has to base decisions about what resources to use on a knowledge of the group members' ages, experience and equipment, and their chances of survival in the prevailing conditions.

A contact person has to know when and how to notify the correct authorities if a party is overdue. Unfortunately, if a class is looking for search operations to analyse, there is usually no shortage of news stories to draw on.

The search

This part of the adventure is text-based. A list of the words that the computer understands is provided on a black-line master. Each child should have a copy of the list; this avoids the frustration of searching by trial and error for the right words to fit a situation.

Although the children should be free to explore this part of the adventure without interference, be sure that they know and understand these words:

HELP SAVE INVENTORY

Planning

As with any problem-solving activity, the group should review what they already know. The injured walker's group has done nearly everything wrong: they were ill-equipped; they entered the cave against all advice; they went for help at night, and, as a result, split up not only the group, but the equipment essential to the rescue of their friend. In the face of this ineptitude, it is probably worth pointing out that they did, however, leave someone to look after the injured person.

It is also worthwhile discussing a search strategy as a class. Whatever the outcome of these discussions, the procedure

demanded by the software is for some members of the group to go and notify the appropriate authorities while the rest begin a search for members of the other party. A 6.00 p.m. deadline ensures that unsystematic, ill-planned searches are fairly certain to fail. It soon becomes apparent that an intensive study of the map can be more effective than charging off into the bush armed only with noble intentions — this can quickly lead to the searchers themselves becoming lost. Should this happen, we recommend that the whole class stops to discuss strategies.

Making the log bridge

This simple logic exercise has been included to maximise interaction within the group and to provide a sense of achievement at an early stage in the rescue. This is a good time to see if there are members of a group who try to dominate the activity at the computer. The teacher may need to help the group members define their roles.

Keeping track of the group's position on the map

Every member of each group should have a copy of the 1:35 000 map. Note that this is incomplete. The grid has been omitted in the interests of clarity, while children should be encouraged to add appropriate details to the key, etc. The full-colour map should be displayed prominently as a reference.

Some teachers have found it helpful to get each group to make a three-dimensional model of the park (using layers of cardboard to represent the contours). These can be painted to show the tracks, roads, streams and different types of vegetation so that by the time the model is complete the children have carried out an intensive study of the map and should be familiar with most of the park's landscape. As the search party moves through the bush they should keep track of their position with markers or pins.

While the children are in the tea-tree tangle they need a more detailed map. A black-line master is provided to help with this section. The layout of the tangle changes from adventure to adventure.

The rescue

Planning the rescue

Maps are usually two-dimensional and it is difficult for children (and most adults) to "see" the mapped landscape in their imaginations. Contours give some idea of how the landscape would appear, but even adults do not find it easy to translate contour lines into hills and valleys.

In *Bush Rescue* a third dimension is provided by the helicopter rescue section. While the helicopter is flying across the landscape children will see the land profile change as each contour is crossed.

By choosing to "Just practise", children can undertake the helicopter navigation exercise separately and unrelated to an adventure. A trial run will ensure the course is correct before a group starts the final rescue mission and practice runs can be used to solve the navigation puzzles suggested on page 23. If the rescue mission fails, the group is told to have more practice before trying again. (There is no other penalty for having failed.) After a successful rescue the helicopter is shown returning to the camping ground.

When planning the helicopter's route from the camping ground to the cave and back, two things must be kept in mind: at no time should the helicopter be more than 80 m above the ground, and the helicopter must fly directly over the mouth of the correct cave and return to the camping ground.

The second requirement is easily achieved as long as the correct locations can be transferred to the screen map (preferably using coordinates to position the crosshairs), but the first can only be achieved by breaking the route into a number of legs, aligning each leg so that the helicopter's path is more or less parallel to the slope of the terrain. Up to ten legs are allowed. This is the procedure to follow for a training flight:

1. Identify the correct cave. (Some children find it helpful to mark its location on the screen with a watercolour felt pen.)
2. Select a route, keeping in mind the 80 m height limit.
3. Choose the flag icon. Pick up a marker (point to one, then press RETURN) and place it at the end of the first leg. Press SPACE to continue.

4. Place markers at the end of each subsequent leg in the same way until you have returned to the camping ground.
5. Point to the ruler and compass (next to the flag icon) and press RETURN. Use the cursor keys to move the end of the ruler until it touches the first marker. Press SPACE to continue. The distance and bearing from the camping ground to the first marker remain in the top right-hand corner of the screen.
6. Point to the flight plan icon (third from the right) and press RETURN. Enter the distance and bearing in the appropriate columns, then the height change required for the first leg. This will be up, so place a "+" in the final column. (Later, to go down, you'll use "–".) Press SPACE to continue.
7. Point to the ruler and compass icon again. Now the ruler will pivot around the first marker. Use the cursor keys to move the other end over to the second marker and press SPACE to continue.
8. Select the flight plan icon and enter the details of the second leg on the second line. If you need to alter earlier entries you only need to type over them. Press SPACE when you are ready to continue.
9. Enter the third and subsequent legs in the same way. Full details of the functions of various keys are available on the information card in the package, and instructions can be read from the screen by selecting the **i** (information) icon at any time.
10. When you are satisifed with the flight plan, copy it onto a piece of paper (in case you need it again — it isn't saved with the adventure) and select the helicopter icon. After a short warm-up period a helicopter symbol will trace the path prescribed by the flight plan. As it moves over the countryside a profile of the land is drawn in colour and above it the helicopter's path appears in white. If the height limit is exceeded, or if it flies too low, a message will appear saying why the flight has had to be aborted.
11. After a successful flight you can check on the locations of the caves by pressing "C". To fly again, press SPACE. To end the session with the helicopter, press "E".
12. If the helicopter has flown more than 4 km during the prac-

tice session, you will be offered the option of printing a certificate of proficiency in navigation. It goes without saying that this must be signed by the teacher to be valid. Press "P" to print a certificate, or SPACE to return to the title screen.

Making the rescue flight

There is no difference between the practice session and the actual rescue attempt except that no certificate is offered. The helicopter's arrival at the camping ground will be shown if the rescue is succesful, otherwise more practice is recommended.

The write-up

Planning the article

Before the group members begin to write a report for the local newspaper, they should review their progress and the accuracy of any notes they may have taken during the adventure. To help jog memories, a summary of the main events is available in the final section of the adventure. Choose "Remind yourself what happened" to read it.

Writing and printing the report

To produce a front page for the local newspaper, children should choose to "Write the story". This word-processor does not offer complex editing facilities, so it is recommended that stories are at the final draft stage before typing them in. The story will be arranged into two columns to fit around a picture and the final page looks best if all three screens are used. To achieve this it is worth showing the children how news reporters write "top heavy" stories: all the important points are grouped at the beginning, with less important details at the end so that they can be dropped off to make the story fit the space available.

Remember that a snappy headline will be needed before the children start to type the story. If there isn't time to enter all the story in one sitting, it can be saved — on another disk if there isn't room on the *Bush Rescue* disk (another disk **must**

be used with the BBC version). Full instructions are given on the screen when required. **Important:** You should have a formatted disk ready because you can't format a new disk from within *Bush Rescue*. To retrieve the text you saved, press function key 6 (on Apples use 6) and follow the instructions on the screen.

Printing the front page is a rather slow job because of the complexity of arranging the text alongside the picture. Please be patient!

Publication

It is not obligatory to use the publishing facilities. However, children could create a much larger newspaper containing other news items, advertisements, competitions, cartoons, letters, etc. There are many ways of creating newspapers in a classroom. The simplest is to print the text with a typewriter or word-processor, then cut and paste it ready for photocopying. If you have a suitable printer, a desktop publishing package could be useful. (A list of such packages can be found in the appendix.)

Other publications could include visitor's guides to places in the *Bush Rescue* scenario (for example the Tilford Steam Museum, a regional fishing guide or a local history). Advertising brochures for hotels, services or real-estate developments are another possibility. Children could perform a similar exercise for their school's immediate locality. In fact, there is no reason why they could not create a similar type of adventure based on their own environment. As there seems to be no trace of a local printer in the Tourist Guide, an enterprising group might like to establish themselves in this role.

Saving the adventure

The software allows for up to 80 saved adventures to be stored on disk. When you first start a new adventure you will be given one of 80 possible code numbers. The user must **write down** this number as it is used both to gain access to Infotel and to continue the adventure after it is saved.

Your progress is automatically saved
when you successfully complete the Infotel section,

when you finish building the bridge,
when you complete the rescue section,
when you complete the helicopter section, and
anywhere in the search section, if you type SAVE.

If you press BREAK, RESET or RESTORE, or switch off, in the middle of one of these sections, you will have to start that section again when you resume the adventure . You must also start the section again if your attempt to complete it is unsuccessful.

When you have finished the helicopter rescue there is a final write-up section. At the end of this, you are given the option of deleting the stored adventure. You should delete the adventure once you have finished using it so that the disk doesn't become filled with old adventures.

The write-up section allows children to create a newspaper article describing their adventure. Note that children can write part of their story, save it on their own disk and add to it later.

The housekeeping program (see page 27) allows you to see what adventures are in use at any time and to delete one or more if necessary.

Note that it is important that you do not press BREAK, RESET or RESTORE when the red disk light is on or when a "Please wait" message is on the screen. If this is done, the disk may be corrupted or you may later get "File in use — wait" appearing on the screen. The solution is to press BREAK, RESET or RESTORE, switch off and start again. Your current adventure may be lost.

4 A guided tour

Important: The entire purpose of the adventure will be thwarted if you make the following information available to your children. Although it is often hard to watch them making mistakes, it is unfair not to allow them the satisfaction of discovering solutions. Successful teachers prefer to ask questions that focus children's attention on the knowledge they already have about a situation. From this position of strength it becomes easier for them to identify which way they should approach the rest of their problem. This section is, therefore, included

only as a guide for teachers pressed for time, or whose progress through the adventure has been outstripped by the children's.

Infotel

There are three things that need to be done. You must book with the Park Rangers (under "Leisure"), ensuring that you choose the correct day. You must book a train from the city to Tilford on the right day, choosing a time when there is a train. You will need a calendar (to check what day of the week it is) and the timetable. You must book a bus from the Tilford station to Caves Bay Park on the correct day, choosing a time when there is a bus at the Tilford Station stop, and this time must be after your train's time of arrival.

If you fail in any part of this, a message will be given suggesting what would happen. You can then continue, trying Infotel again, and correcting your mistake. If you run out of time or give up (by pressing BREAK, RESET or RESTORE), you will have to make all the bookings again when you restart the adventure.

The bush search

There are three levels of difficulty. Following is the solution to the expert level. The differences in the easier levels are described later. In all adventures the children should have a list of recognised words and, in particular, should understand the use of HELP, INVENTORY and SAVE.

At the camp site you can take the torch (but you will lose it when you cross the river anyway). You must then cross the river. You can't get to the proper bridge as a tree has fallen, as described in the Infotel local news. However, it is possible to build a bridge from logs just north of the camp site (opposite the island). Here you BUILD THE BRIDGE.

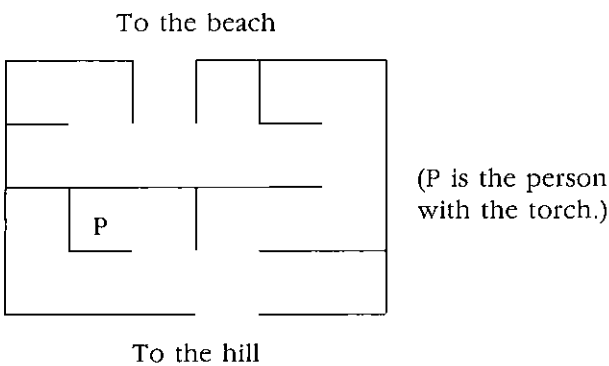
This involves a graphic interlude. Start with the biggest log. Put it down so that its left end just rests on the protruding rock but does NOT overhang it. Now put the three smaller logs in place to reach the island. Go back for the biggest log and place it just west of the island. Next take the biggish log that was on the island and place it at the eastern end where it fits exactly. Lastly go back to the island, take a small log from the bridge

and use it to reach the west bank. Take the tiny log from there and put it on the island for the moment. Go back for the small log at the western end and put it back where it came from. Lastly take the tiny log from the island and put in its place on the western end.

You should now cross the bridge to the west bank. Go south, west (to the crossroads), then south and south. Open the hut door, go east (into the hut), open the box and take the glue.

Return to the crossroads, go west till you reach the hill top, then north into the maze. The maze will vary from one adventure to another, and you must map it. It is always the same shape (see the black-line master), and a person with a torch is always in it somewhere and this person must be found. Leave by the north exit.

Typical maze:



Go north to the beach, collecting the billy, west to collect the plank, then back east to the boat. Next mend the boat (MEND BOAT), for which you must have the plank and the glue. Go east to the mouth of the river, south to the waterfall, then west till you meet a person with the chart. Read or examine the chart — it tells you which of five possible caves contains the injured person.

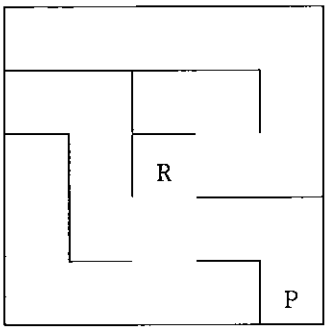
Go back to the boat and launch it (LAUNCH BOAT). Go west to the creek mouth, then south as far as you can, bailing the

boat whenever necessary (BAIL BOAT WITH BILLY). Go west — the boat will land. Go west again and you will find a person with the rope. Now go back to the maze and through it again to the hill top.

Next you must find the right cave. The cave near the hill is reached by going west then south. For the others, keep going south till you reach the fire track. Go east for the cave at the east end of the fire track, or west for the others — one move west then south for the middle cave, or else as far west as you can, then north or south.

Go into the cave, tie the rope to the stalagmite, then go down the rope (DOWN) and use your torch (SWITCH TORCH ON). Use the chart again (READ CHART). If you are in the correct cave you will be shown a plan of the caves. Each set of caves is always a square of five-by-five chambers and the rope always hangs down into the middle chamber.

Typical cave:



(R is the rope, and is always in the centre. P is the injured person.)

The warm clothes and food are automatically left with the injured person and you must return to the camp site before 6.00 p.m.

At the average level time passes more slowly, making the time limit easier. Because the boat is undamaged, you don't need the plank or the glue (and, indeed, they can't be found).

At the beginner's level, time passes even more slowly. The

boat is not needed and is not present. The person with the rope is now on the east bank of the creek and so can be reached on foot.

Note that in every level there is a time limit of 6.00 p.m. If you have not found the injured caver and returned to the camp site by then, this entire section is abandoned and must be repeated, though you do not have to do the Infotel section again.

It is always necessary to find the person in the maze with the torch, and the person by the creek with the rope. Except at the beginner's level, this person can only be reached by boat. The person by the waterfall should also be found as otherwise you do not know which cave the injured caver is in, nor do you have a plan of the cave layout.

Helicopter

You are strongly advised to practise helicopter flying at this stage if you have not already done so. You now know which cave you need to fly to. Start afresh (once your adventure is saved) and select "Just practise" and "Practise helicopter flying." You can have as many flights as you like. After each one, press C to check where the caves are. It helps to arrange your flight in legs each of which is over ground of uniform slopes. The first leg should be short, but climb + 40 m (as your legal height is from 0 to 80 m above ground). Keep altering your route, or adding to it, till you have a flight plan that successfully takes you to the required cave and back to camp. Write down the details of it. Press E to end. If you flew more than 4000 m (and have a printer connected), you can print a certificate of competency at this point.

Now start again. Boot the disk, load your adventure and you are ready to try the "real" rescue flight.

Write-up

Children may switch freely from composing their story to reminding themselves of the details of what happened, but if they leave this section without printing their story, they will have to remember to use their own formatted disk to save their

text. Instructions are given on the screen. Stories usually cannot be saved on the *Bush Rescue* disk.

The finished newspaper story looks much neater if the story occupies all or nearly all the three screens. When printed, the text is automatically right-justified (so that the right margin is smooth, as in a real newspaper), but this won't work if very long words are used.

5 Using *Bush Rescue* in a classroom

Organisation

Most educators agree that the best way for children to work with packages such as *Bush Rescue* is in small groups. The ideal size of a group depends mostly on the children involved, but regardless of the size of the class, it is advisable to have no more than five or six groups — otherwise resources are stretched.

With some packages it is not necessary to keep groups together in any one part of an adventure (for example, *Dinosaur Discovery*), but the structure of *Bush Rescue* makes it advisable to focus on the four main sections in turn: planning, the search, the rescue and writing up the reports. Before proceeding with each section, take time to review problem-solving strategies as a whole class; information can be sought from members of the community (for example pilots, rangers or cavers), information can be shared between groups about their progress so far and skills essential to the next section can be introduced.

Planning

To make best use of the package, detailed analysis and planning by the teacher is essential. This is not easy, but is worth the effort.

1. Decide how long the unit should last. Don't try to fit too much in if your time is limited. How will it fit in with the school's major activities (camps, displays, visits and so on)?
2. Take the software home and work through an adventure from the point of view of your children, considering their ages, skills, needs, interests and background experience.

Decide how the theme can best relate to your children's backgrounds.

3. **Write down** the skills needed that you may otherwise take for granted (e.g., reading videotex, locating information, organising the sequence of bookings logically).

   Write down the skills that **you** had to acquire. Did you need a manual? (Which ones?) Could you map a text-based adventure and interpret a topographical map? Exactly which operational skills did you need to navigate the helicopter? Your children will need to learn these, too.

   Make a list of all the skills the children are expected to have, then assess how many will need help to develop skills before starting the activity. The activity might be pointless for them if they don't do this. Some skills will be developed in the course of the adventure (e.g. interpreting contour lines, navigation by dead reckoning and using a Viatel menu), but children should be moderately proficient in others (such as note-taking and elementary keyboard use) before they start.
4. Your classroom organisation must suit the learning needs and social skills of the children, so who goes into which group? How much time each day can be allocated to the adventure?
5. What materials will need to be on hand (reference books, photocopied forms, worksheets, maps, notepads, art materials, concrete aids for problem solving)? Where will they be kept? Will the room layout need to be altered?
6. Do the children have the necessary operational skills for the computer and the adventure? Is a list available of what the keys do at different stages of the adventure? Do all children know how to save and load their adventure? Are they able to share roles when working at the computer in groups?
7. List exactly which outcomes are expected in each area of the curriculum for the major ability groups.
8. Are you capable of handling a crisis? Without doubt, there will be one at some stage! When one group isn't making any progress, decide whether the groups will work on independently or you will draw the class together to share

experiences and strategies. If you become sick, is the planning thorough enough for anyone else to take it over? If the computer stops working or the disk gets ruined will you be able to achieve your educational aims? (You *will* be using a backup copy of the disk, won't you?)

9. How are you going to make parents (and other teachers) aware of what you're trying to do? It is quite justifiable for a parent to question your actions when their child comes home, day after day, saying that all they have done at school is play computer games.
10. Are your children ready to solve problems? It might be worthwhile pointing out that they already use many problem-solving techniques in most things they do. Most groups will be faced with situations where they really don't know what to do next. Are they prepared to try a range of problem-solving techniques without your intervention? The following checklist may be of help:
    Look for a pattern.
    Act out the problem.
    Make a drawing (picture, diagram, graph).
    Work backwards.
    Make a model.
    Change one variable at a time.
    Summarise what you know.
    Ask yourself if the result is sensible.
    See if there is more than one solution.
    Write down the problem in your own words.
    Look at the solutions of similar problems.
    Eliminate possibilities.
    Get more information.
    Make sure all the information is being used.
    Talk it through.
    Scan for clues and hints.
    Try and see it from another point of view.
    Take a risk.
11. Will there be a class activity to serve as the culmination of the *Bush Rescue* project? A display of newspapers, books, models and skills acquired during the course of the adventure is something for a class to work towards, and

could prove a good way of showing parents the wide range of skills their children have learned.

Related activities

Like all computer-based adventure packages, *Bush Rescue* teaches nothing, but neither is it meant to be just another computer game to be played as a reward for finishing "real" schoolwork before the rest of the class. It is designed to be used as a focal point for learning activities in all areas of the curriculum. Much as we would like to, it is impossible to list every way in which the components can be linked with classroom activities. In upper primary classes where *Bush Rescue* has already been used, teachers found that they needed around ten weeks to carry out most of the related activities in maths, social studies, art, craft, outdoor education and language.

It is important that the teacher prepares a wide range of suitably challenging and related off-computer activities for the groups. These can include the following:

- Researching and practising first-aid techniques
- Making models
- Preparing reports written from different viewpoints (e.g. rescuers, parents, police, rangers, the injured person)
- Preparing and presenting reports for different media (radio, television, newspaper, magazine)
- Reading and reviewing related books
- Outdoor skills (pitching tents, bush cooking, choosing and using suitable equipment)
- Designing and writing an instruction card for a piece of equipment (e.g. how to pitch a tent)
- Science experiments (Invent the best recipe for a survival biscuit that is not only nutritious, but can survive in a backpack.)
- Navigation exercises (Prepare a flight plan that passes over every cave. Which group can fly the furthest in five legs? Ten legs? Prepare a flight plan using only pencil, ruler and protractor on the paper map and try to stop exactly over a cave.)
- Art (Plan and produce a class mural that tells the story of the rescue. Carry out some research into Aboriginal paintings and try to imitate their style, texture and shapes. Try to use the same media to produce your own painting. Design and

produce advertising for the various Funcoast attractions.)
- Social studies (Research and prepare local guides.)

With a focus like the *Bush Rescue* package, the time spent at the computer is not nearly as important as the time each group spends discussing, planning and recording their activities. Some classes have successfully used *Bush Rescue* with as little as half an hour per week computer time for each group.

Additional activities

Some of these ideas may be useful in your classroom.

Equipment and planning

Both a camping trip and a rescue operation require equipment and planning. Make equipment lists for these:

1. Rescue and help facilities for
   (a) an ambulance,
   (b) a life raft on a passenger ship,
   (c) a mountain rescue team,
   (d) a famine-relief vehicle,
   (e) a first-aid box.
2. Expeditions such as
   (a) caving,
   (b) flying a hot-air balloon across an ocean,
   (c) Captain Cook going to Australia,
   (d) crossing the desert,
   (e) a trip to Mars.

Devise plans for each of the following:

1. Making a rescue from
   (a) a sailing dinghy,
   (b) a submarine,
   (c) a car accident,
   (d) a large forest,
   (e) an earthquake.
2. Expeditions like
   (a) a trans-Africa car rally,
   (b) rowing across the Pacific Ocean,
   (c) finding the lost city of Atlantis,
   (d) climbing Mount Everest,
   (e) reaching the South Pole.

What to do in an emergency

It can be difficult to know what to do for the best in an emergency and often those in a position to do something useful cannot think clearly. In many cases we are advised to do nothing except call for help. However, it might save lives some time if children know what to do in situations like these:

1. A house fire
2. A swimmer in difficulties
3. Electric shock
4. Witnessing a burglary
5. A traffic accident
6. Getting lost in a city
7. Getting lost in the countryside
8. Finding a bomb

Design technology

Design and make

1. a tent that will provide maximum security in high winds and which is quick and easy to erect;
2. a solar-heated shower;
3. a desalination device to make sea water drinkable;
4. a permanently horizontal stretcher for use on rough terrain;
5. a portable bridge;
6. a machine for exploring caves in the dark;
7. an unsinkable boat;
8. a communications kite for use in the bush.

Art

1. The Funcoast Tourist Guide holds a number of advertisements. Create larger advertisements that would suit billboards. There is every chance that these would ruin the environment; try creating advertisements that look attractive.
2. Use natural materials to create bush collages. Paint on pebbles. Draw on slate. Carve a branch. Make figures from grasses. Dry and colour different types of grasses. Make leaf prints or animal hoof casts. Find natural wool, spin it and make woven pictures.
3. Create pictures of all the animals that are found in *Bush Rescue* and show them in their natural environment.

The environment

1. Find out about national parks, their history and their purpose. Do all countries have national parks? Which ones are world famous? Find out about the pressures on conservation areas caused by the building of roads and houses, the presence of visitors and the needs for timber.
2. Is there a part of your school or an area close by that could be turned into a conservation area? How would you establish such an area? Would it be worthwhile?
3. Find out which parts of the world are most in danger of losing their natural heritage. Will it matter if rainforests disappear?

Discussion

Some of the following ideas should stimulate a class or group discussion:

1. Should we be allowed to put our lives in danger by undertaking dangerous exploits? When people attempt to cross oceans or deserts (perhaps in order to set a new record), very expensive rescue missions might have to be sent out to find them. Would humanity lose something important if there were laws against adventuring?
2. Should there be a minimum age for children to go camping without an adult supervisor?
3. Should parts of the countryside be set aside for the exclusive use of young people?
4. When people go to conservation areas they still require certain services. What are the minimum services that should exist in such areas? Which facilities, although useful to some people, would spoil the nature of conservation areas? Should shops, hotels and railway stations be camouflaged?
5. In *Bush Rescue* the bookings are made electronically. Computers have meant that many people are able to work from home. Will the world be better or worse when, without leaving their homes, people can do many things that they would now have to go out to do?

Mapping and maths using the helicopter

1. Beacons
   (a) Place a marker on the map, then try to write a flight plan that will take the helicopter to the beacon.

(b) Challenge experienced navigators to write a flight plan without using the computer's ruler and compass. This routing might help get them started:
   (i) Place a marker on the map using the flag icon.
   (ii) Estimate the distance and direction of the first leg.
   (iii) Enter the direction and distance on the flight plan.
   (iv) Draw the route by selecting the pen icon.
   (v) Edit the flight plan until it is correct.

A more difficult challenge would be to fly to more than one marker.

There is no need to fly the helicopter to see if the route is correctly planned unless, of course, a change in altitude is needed. For the first exercise it would be a good idea to place the marker so that the helicopter only crosses the flatter areas of the park.

2. Hedge-hopping: Choose a route that crosses a number of contour lines. Write a flight plan that allows the helicopter to fly as low as possible. You could try flying the route as close to the upper limit (80 m) as possible.
3. Caving: Place markers over the cave locations. Prepare a flight plan that links the caves clockwise. Copy the plan. Now prepare a plan linking the caves anticlockwise and make a copy. Are there any patterns or relationships between the figures on the plans?
4. Marathon: Plan the longest flight possible. Some rules could be introduced, such as "all bearings must be in tens" or "every leg but one must cross a contour line".
5. Profiles: Create a flight plan, and make a sketch of what you think the profile will look like before you begin the flight.
6. Predictions: Give the children a flight plan. Ask them to predict the route before they make the flight.
7. External angles of polygons: Plan a polygonal route that starts and finishes at the camping ground (and, to make life easier, avoid crossing contour lines). Calculate the external angle at each vertex by finding the difference between the bearings of the two lines forming the vertex. Where one bearing is less than 360° and the other is greater than 360°, the difference is 360° − bearing 1 + bearing 2. For example, the difference between a bearing of 340° (< 360°) and one

of 80° (>360° or 0°) is 360° − 340° + 80° = 100°. Presto! The sum of the external angles is 360°.
Is it always 360°? Does the number of sides make a difference?

8. Back bearings: Plan a polygonal route starting and finishing at the camping ground (as outlined above). Work out a flight plan to cover the same route, but in the opposite direction. The easiest way to work out a back bearing is to follow this rule: if the bearing is more than 180°, subtract 180°; if it is less than 180°, add 180°.

Bridge building

1. Find out about different kinds of bridges — over rivers and roads. Collect photographs of bridges around the world. Make up a quiz for identification.
2. Look at the structure of different kinds of bridge and discuss different designs. Research major bridge-building achievements (and calamities) in history.
3. Provide limited materials (e.g. card, adhesive tape, scissors) and ask the children to experiment. Can you build a bridge that supports a kilogram weight?
4. Ask groups of children to use Lego or similar building materials to construct a bridge that will span a 30 cm "river". Set a price on the building blocks and see which group can construct the cheapest, most effective bridge. Use newspaper and tape to construct a bridge with a span of 30 cm which will support a 1 kg weight.

Mazes

1. Where are mazes to be found?
2. Make a collection of maze puzzles from comics and books. Set some up in the classroom for pupils to try out. Place a timer nearby so that children can compare times taken to solve a maze problem. Compare strategies adopted and encourage a systematic approach.
3. Use the MAZES part of *Dragon World*.

Caves

1. What are caves and how are they formed?
2. Where can caves be found?
3. Research cave-dwelling societies in prehistoric and recent times.

4. Why did prehistoric people live in caves and how do we know so much about their way of life?
5. Imagine you live in prehistoric times. Describe a typical day in your life.
6. How are stalactites and stalagmites formed?
7. Edgar Allan Poe, and others, have written chilling horror stories set in caves and catacombs. Children who like being frightened into fits will enjoy these.

Helicopters

1. What are helicopters used for?
2. What advantages do helicopters have over other types of aircraft?
3. What else can hover besides a helicopter?
4. What makes a helicopter
   (a) lift into the air,
   (b) move forwards,
   (c) go sideways?

Contours

1. Study a 1:25 000 topographical map of an area familiar to the class. Show how high and low areas are represented by contour lines on the map.
2. Make a miniature landscape model using plasticine or clay. Stand the model in a deep metal or plastic tray. Pour in coloured water to a depth of 5 mm and mark, with a blade, the surface level all the way round the model. Increase the depth to 1 cm and repeat. Continue until the model is almost submerged. Pour the water away and observe the pattern of the marks made by the blade. These are contour lines.
3. Build a chicken-wire and papier-mâché model of a landscape with steep and gentle slopes. Draw contour lines on the model and observe it from above.
   (a) What are the contour lines like where the land is steeply sloping?
   (b) What do they look like on gentle slopes?
   (c) What do they look like where there is a valley?

Drama

1. Enact a rescue mission. Draw out the feelings of those being rescued and of the rescuers. (Ask the children to show what happens when fun and excitement turn to fear and panic.

This will highlight the importance of calmness and clear thinking if lives are to be saved.)

2. Find out about real-life rescues, perhaps from newspaper items, and imagine how the participants must have felt.
3. One child plays the role of a telephone operator and another takes the role of a frightened person who is making an emergency call. Act the parts of police officers trying to calm down an accident victim in order to obtain an eyewitness report.

6 Using *Bush Rescue* in schools outside Australia

Both the adventure and the accompanying materials contain many references which make it clear that Caves Bay is in Australia. An interesting activity would be for the children to find as many of these references as possible and explain why they are significant.

In the Tourist Guide there are references to "sunbaking", "real estate", "cold beer", "drive-in bottleshop" and "bushrangers", but a very significant clue to the Australian setting is provided by the climate figures. These show that temperatures are higher in December than in August. (British cynics may remark that this is no different from home.)

The Visitor's Guide mentions native plants and animals, Aborigines and settlers. In the adventure children will meet kookaburras and koalas, dollars and cents. Children might enjoy listing the changes that would be necessary to fit *Bush Rescue* into their own country.

7 The housekeeping program

Several things can be done with this program. To use it, start the *Bush Rescue* disk in the usual way, but, when the title screen appears, press "T" (for teacher) instead of using the highlight bar.

A menu offers this choice:

1. Changing the year.
2. Listing all current adventure code numbers.
3. Deleting an adventure.
4. Deleting all adventures.
5. Printing timetables.
6. Printing a calendar.
7. Changing the second local news screen.
8. Change the printer setup (Apple only).

1. Changing the year: Children are given a date chosen at random from the early part of the "current year". This is the day on which their adventure starts. It will vary randomly from one adventure to another. They must use a calendar to find out what day of the week it is, as this will affect the train and bus times. Clearly the year that they are given should be the current year. The year is initially set to 1987, but by using this option the teacher can make the program select a date in a different year.
2. Listing code numbers: This allows the teacher to see how many adventures are currently saved and what their code numbers are. This is helpful for children who have forgotten a code number or for checking that there are not lots of forgotten adventures saved on the disk. It is better to clean off adventures that are no longer wanted.
3. Delete an adventure: This allows the teacher to remove a saved adventure that is no longer wanted. Children are given the option of removing their adventure when they finish it, but some children may leave the adventure uncompleted — this option should then be used to remove their saved adventure when it is no longer wanted.
4. Delete all adventures: This should be used at the end of a year, or when a new class starts using the disk.
5. Print timetables: The bus and train timetables are given in the written documentation, and children can use these. However, this option allows a copy of the timetables to be printed (on screen or on a printer).
6. Print a calendar for the current year in the program: A suitable printer must be connected.
7. Change the news screen: In the Infotel section, there are two

"local news" screens. The first is always to do with storms in the area, but the second can be altered. You could insert some local or topical school news, or children could compose their own news item.

8. Change the printer setup (Apple only): This allows you to tell the program which slot the printer card has been installed in, what type of card you are using, whether the printer needs a line feed and whether it is an Imagewriter or an Epson. These settings are then saved on the disk.

8 Technical details

Apple

Printer slot

The software is written for a printer card to be installed in slot #1. If you are using a card in another slot you must adjust the software by using option 8 in the housekeeping program.

Printer

The software is initially set up for an Imagewriter printer. If you wish to use an Epson-compatible printer, use option 8 in the housekeeping program to make this change. Automatic line feed adjustments can be made from within the housekeeping program.

BBC

Printer

The software assumes that an Epson-compatible printer is being used. It is assumed that the printer is connected to the parallel port and that the printer does not require a line feed to be sent.

If you find blank strips between lines of print, you will need to alter the printer's DIP switches to stop it generating a line feed automatically. Instructions for doing this are in the printer manual. (Altering the computer's *FX6 setting won't work as the program requires this setting to be *FX6,10.)

If you want to use a Gemini printer, two changes must be

made to the program TT. Using a backup copy of the disk, enter

*ACCESS TT (for DFS) or

*ACCESS TT WR (for ADFS or NFS),

and then change lines 720 and 950 as follows:

```
720 VDU 2, 1, 27, 1, 64, 1, 27, 1, ASC "B", 1, 2
950 NEXT: NEXT: PRINT: NEXT: PRINT''':
    VDU 1, 27, 1, 65, 1, 12, 1, 27, 1, ASC "B", 1, 2
```

Now enter SAVE "TT" and then

*ACCESS TT L (for DFS) or

*ACCESS TT LR (for ADFS or NFS).

BBC network details

The software is designed to be easily transferred to a network. Create a suitable directory and transfer all the files into that directory.

All files should be given the access WR/R, except for the following:

!BOOT	should be deleted.
GAMES	must have access WR/WR.
TEACHER	should have access R/.
TT	should have access R/.

If you wish, the files can be locked, except for GAMES, YEAR and IODD. These are written to and so they must **not** be locked.

The software should be started by CHAIN "START".

You must decide whether to give users ownership of the directory or not. If they do **not** have ownership, all features of the software will work (including the saving of status) **except** they will not be able to save any text in the write-up section (this section would have to be completed in one sitting). If, however, they **do** have ownership, all sections, including text-saving, will work correctly, but there are disadvantages: there is nothing to stop pupils using the teacher utility programs, and they can delete or alter the programs. The descriptions given here assume that pupils have public access only, i.e. they don't own the directory.

The programs TEACHER and TT perform the housekeeping tasks described on pages 27–29. Normally children should not be allowed access to these programs, so they should be accessed R/. This means that the teacher needs to be privileged, or to

have ownership of the directory, to use them.

Adventures are saved in the file GAMES. Children do not need to have ownership of this file, but the file MUST have access WR/WR (because alterations are made to it using OPENUP and OSGBPB).

If several children try to save or load adventures at the same time, the file-server will cope with one request at a time and others will receive the message "File in use — please wait." The software will automatically try again every second or two until the file becomes available, so that eventually everyone is dealt with. Normally this process will not take more than a few seconds.

If 80 adventures are saved, there will be no room for any more. The housekeeping program must be used to delete some or all of the adventures.

It is possible that a child may press BREAK while saving an adventure, when the computer is in the middle of altering the GAMES file. In this case all other users who try to load or save an adventure will permanently be given the "File in use — please wait" message. This is because the file-server thinks that the file is still being used by the pupil who pressed BREAK. The solution is to find the computer which caused the problem and log off (*BYE).

If all else fails and the "File in use" message persists, stop the file-server and restart it; everyone will have to log on again and any progress since they last saved their adventures will be lost.

The RDATA file contains information concerning the newspaper picture. This is opened for input only, so there is no problem with many users using it simultaneously. The file must have access WR/R. However, note that, if a network printer is being used, it may be wise to ensure that only one pupil at a time is allowed to print a story. The printing makes use of graphics codes and assumes an Epson-compatible printer. Some early NFS chips can't cope with graphics printing.

Warn pupils that they cannot save text in the write-up section, and so they should allow time to complete their story at one sitting. If, however, users are given ownership of the directory in which the *Bush Rescue* files are held, text can be saved

by following screen instructions (but you don't need to change disks).

Commodore

Disk formatting

You need a formatted disk to save your front-page news text. To format a new disk, type

OPEN 15,8,15,"N0:*name,id*":CLOSE 15

then press RETURN. (Note that *name* can be any relevant title for your disk and *id* can be any two letters.)

Appendix

Desktop publishing software

Apple

The Newsroom
The Print Shop

BBC

Fleet Street Editor
AMX Pagemaker

Commodore

GEOS

Videotext packages

Apple

Viaterm, Bizap

BBC

Tele-Book, 4Mation Educational Software
Ecofax, Acorn User magazine
NetFax, Acorn User magazine
Mikefax, MEP

Commodore

GP Term, GP Software, 21 Aloomba Rd, Ashgrove, Q. 4060